

AN 1993-330491 [42] WPIDS
DNN N1993-255249 DNC C1993-145942
TI Foam polymer used as dielectric material - by producing copolymer from matrix polymer and thermal decomposable polymer and forming foam polymer by heating copolymer.
DC A85 L03 V04 X12
IN HEDRICK, J L; HOFER, D C; LABADIE, J W; PRIME, R B; RUSSELL, T P
PA (IBM) IBM CORP; (IBM) INT BUSINESS MACHINES CORP
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US 5776990 A 19980707 (199834)
ADT JP 05205526 A JP 1992-207845 19920804; JP 2531906 B2 JP 1992-207845 19920804; US 5776990 A Cont of US 1991-759022 19910913, US 1993-31046 19930311
FDT JP 2531906 B2 Previous Publ. JP 05205526
PRAI US 1991-759022 19910913; US 1993-31046 19930311
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AB JP 05205526 A UPAB: 19970502
The foamed polymer with a hole dia. of up to 1000A is obtd. by producing copolymer of a matrix polymer and a heat decomposable polymer decomposing at a temp. lower than the decomposition temp. of the matrix polymer and heating to copolymer to a temp. at or higher than the decomposition temp. of the heat decomposable polymer and lower than the decomposition temp. of the matrix polymer.
USE/ADVANTAGE - The foamed polymers have a lower dielectric constant and are useful as polymer insulators for electronic parts. The polymer is pref. foamed polyimide and poly(phenylquinoxaline) (PPQ).
In an example, a soln. of 16.812g bis(phenylglyoxalyl) benzene (PPQ material) and 10.266g polypropylene oxide with the terminals being capped with benzyl having a Mn of about 5000 (heat decomposable oligomer) (PO) in 100 ml of a mixed solvent of m-cresol and xylene (1:1) was drooped in a slurry of 10.7135g diaminobenzidine (also PPQ material) in 50 ml of the mixed solvent under stirring, the mixt. was stirred for 20 hrs. and poure in methanol and the obtd. precipitate was rinsed with methanol repeatedly to give a copolymer with a PO of 20 wt.% in a yield of 78%. A foamed polymer obtd. by heating a film of the copolymer for 9 hrs. at 275 deg. C had a density of 1.16 g/cm3, dielectric constants at 45 and 100 deg. C at 20 KHz of 2.38 and 2.36 and a mean hole dia. of 80A. (Reissue of the entr advised in week 9337 based on complete specification
Dwg.0/0

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*** ITERATION 1 ***

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